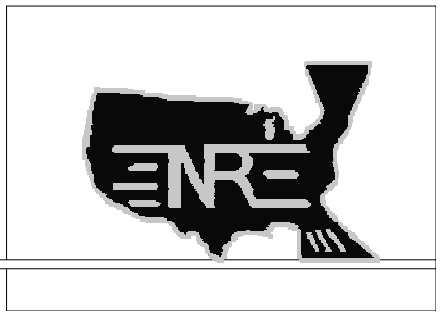
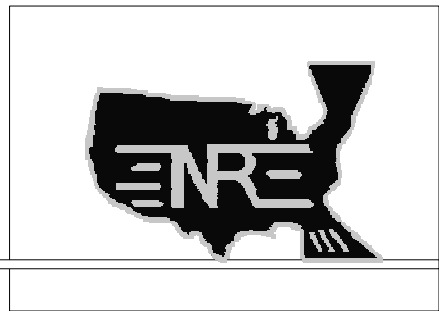
Multi-Engine GenSet
Ultra Low Emissions
Road-Switcher Locomotive

National Railway Equipment Co.



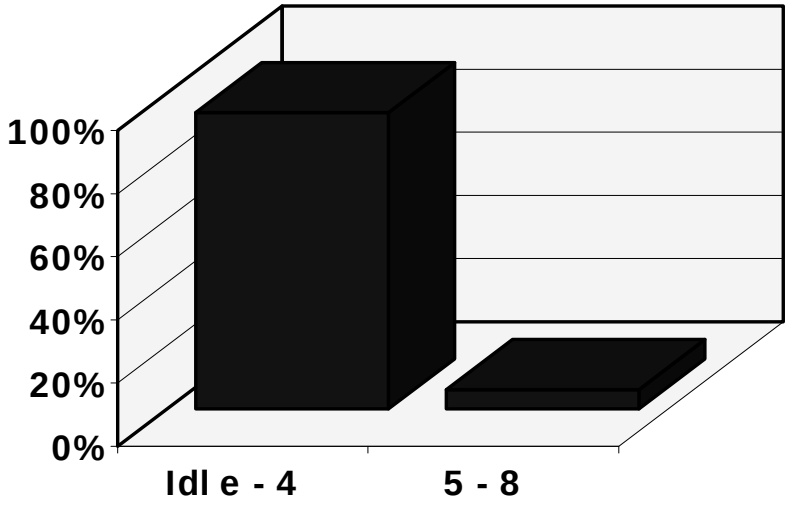
New Locomotive Concept

- **Uses Multiple Diesel Engine GenSets that are EPA Tier III Off-Road certified.**
- **The locomotive is EPA Tier II Railway Industry certified and is recognized by the California Air Resources Board (CARB) as an Ultra Low Emissions Locomotive (ULEL).**
- **Controls the horsepower and rpm levels for each engine in order to achieve even better emissions and fuel consumption rates.**
- **Manages start and stop functionality to minimize engine idling.**
- **Provides all electrical power to a common connection so that DC power can be managed to individual traction motors for better adhesion to the rail and provides all necessary power for the operator's cab, air brake system and equipment cooling.**
- **Arrange all the major components on the locomotive frame to enhance ease of replacement.**



Throttle Schedule

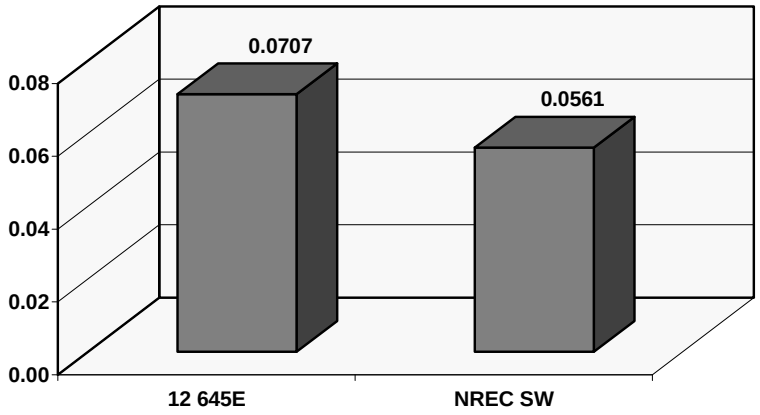
Notch Position	engines running	engine rpm	total horsepower	duty cycle	horsepower weighted
Idle	1	900	25	59.8%	14.95
1	1	1300	125	12.4%	15.50
2	1	1500	225	12.3%	27.68
3	1	1500	425	5.8%	24.65
4	1	1800	650	3.6%	23.40
5	2	1600	850	3.6%	30.60
6	2	1500	1000	1.5%	15.00
7	2	1500	1250	0.2%	2.50
8	2	1800	1400	0.8%	11.20



Idle - 4	94%
5 - 8	6%

20.7% Fuel Consumption Savings

Throttle Notch	12 645E RPM	NREC SW RPM	NREC SW ENGs RUN	12 645E BHP	NREC SW BHP	12 645E Fuel Rate Gal/Hr	NREC SW Fuel Rate Gal/Hr	Duty Cycle %	12 645E Weighted BHP	NREC SW Weighted BHP	12 645E Weighted Gal/Hr	NREC SW Weighted Gal/Hr
8	900	1800	2	1517	1377	90.6	68.86	0.8%	12.14	11.02	0.72	0.55
7	820	1500	2	1334	1210	76.4	65.36	0.2%	2.67	2.42	0.15	0.13
6	729	1500	2	1016	1051	61.1	56.79	1.5%	15.24	15.76	0.92	0.85
5	651	1500	2	858	844	48.0	49.29	3.6%	30.89	30.40	1.73	1.77
4	568	1800	1	641	658	36.0	34.64	3.6%	23.08	23.68	1.30	1.25
3	490	1500	1	415	430	24.0	23.57	5.8%	24.07	24.93	1.39	1.37
2	370	1500	1	221	234	13.7	12.50	12.3%	27.18	28.76	1.69	1.54
1	300	1300	1	62	123	5.6	6.79	12.4%	7.69	15.28	0.70	0.84
Idle	300	900	1	10	44	3.2	2.86	59.8%	5.98	26.31	1.93	1.71
								Totals:	**148.93**	**178.55**	**10.53**	**10.01**



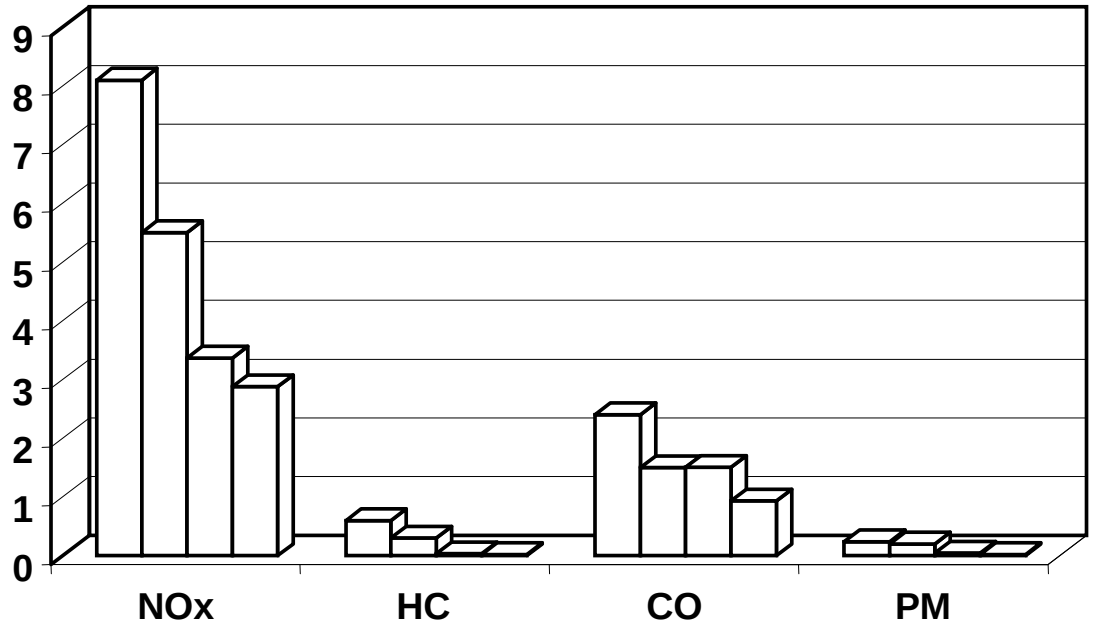
	12 645E	NREC SW	% Diff
Weighted BSFC:	**0.0707**	**0.0561**	**20.7%**

USA EPA EMISSIONS LIMITS FOR LOCOMOTIVES

VERSUS NREC LOW EMISSIONS SWITCHER

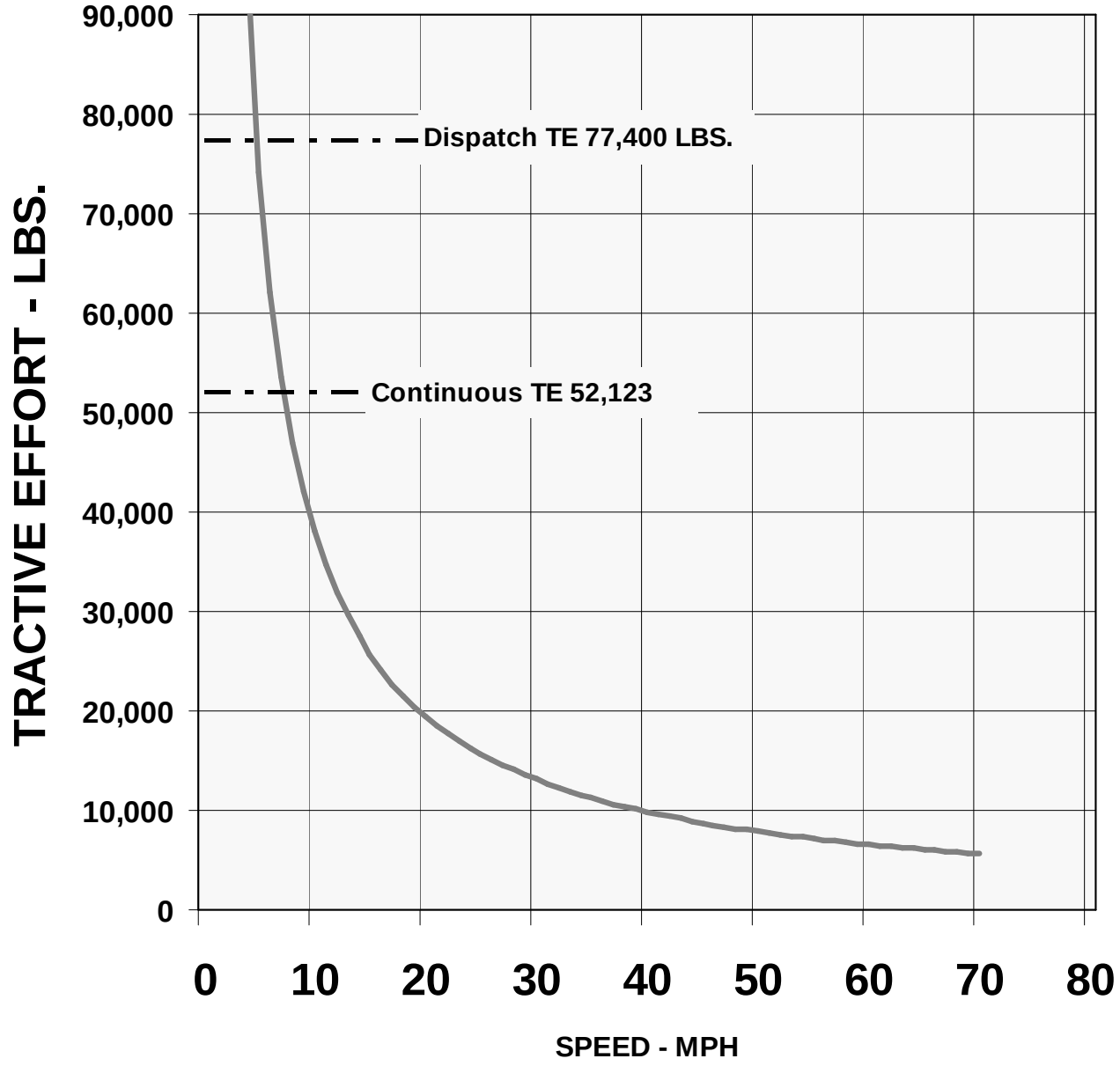
COMPARISON CHART

EMISSIONS	TIER II RAIL		NREC SWITCHER			
(G/BHP-H)	SWITCHER	LINE HAUL	SWITCHER	% LOWER	LINE HAUL	% LOWER
NOx	8.1	5.5	3.37	58%	2.88	48%
HC	0.6	0.3	0.04	94%	0.02	93%
CO	2.4	1.5	1.51	37%	0.93	38%
PM	0.24	0.2	0.05	80%	0.02	89%



- USA EPA RAIL TIER II SWITCHER
- USA EPA RAIL TIER II LINE HAUL
- NREC SWITCHER - SWITCHER
- NREC SWITCHER - LINE HAUL

TRACTIVE EFFORT VS SPEED

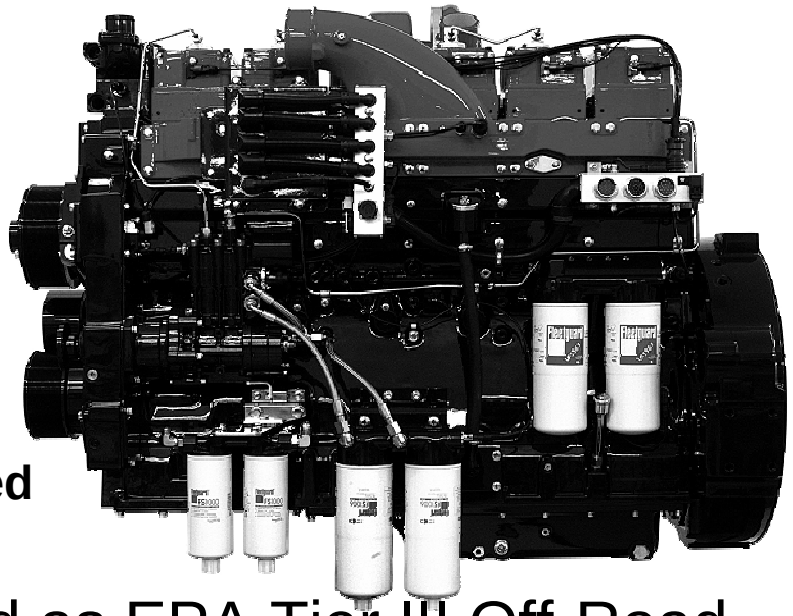


62:15 Gear Ratio
40 inch Wheels
1385 BHP - 129 Tons
D77 Traction Motors

Actual THP May Vary
Entire Curve May Not Be Available At All Times Due To Limitations of Wheel/Rail Adhesion

Dispatch TE is based on 30% adhesion

Cummins QSK19 Tier III



Engine Type = In-Line, 4-Cycle, 6-Cyl
Displacement = 1159 cu. In. 19 Liters
Rated Power = 510-700 BHP 379-522 kW
Aspiration = Turbocharged
Air-to-Air Charge Air Cooled

- The Engine is designed and certified as EPA Tier III Off-Road compliant
- Full Authority Electronic Controls
- Cummins Modular Common-Rail Fuel System
- Over 6500 QSK19 Engines in Industrial Applications

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

2006 Model Year Certificate of Conformity

Manufacturer: **National Railway Equipment Company**
Certificate Number: NRE-LOC-06-01
Effective Date: DEC 16 2005
Date Issued: DEC 16 2005

Merrylin Zaw-Mon, Director
Compliance and Innovative Strategies Division
Office of Transportation and Air Quality

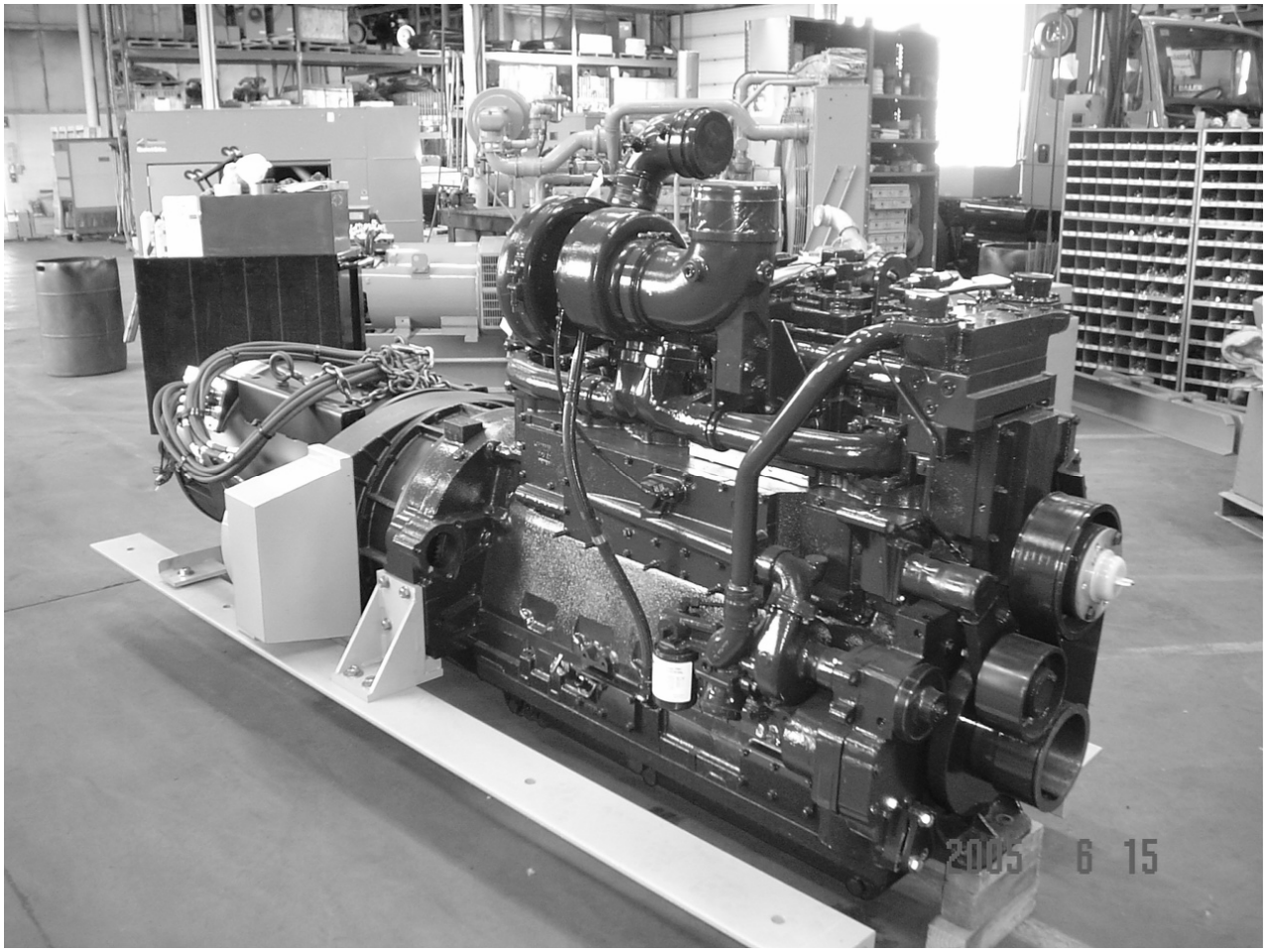
Pursuant to Section 213 of the Clean Air Act (42 U.S.C. section 7547) and 40 CFR 92, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engine which has been found to conform to applicable requirements and which represents the following locomotive engines, by engine family, more fully described in the documentation required by 40 CFR 92 and produced in the stated model year.

Locomotive Engine Family (New engine): 6NREGCM19LOC

This certificate of conformity covers only those new locomotive engines which conform in all material respects to the design specifications that applied to those engines described in the Application for Certification required by 40 CFR 92 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR 92.

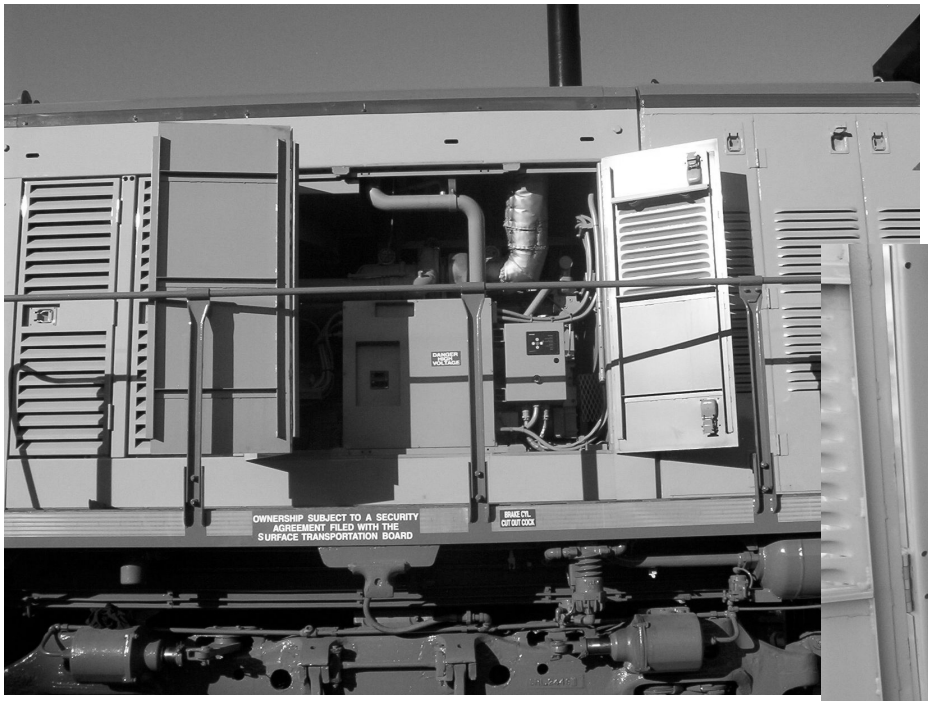
It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 92.215(d)(1) and 92.504 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR 92. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for other reasons specified in 40 CFR 92.

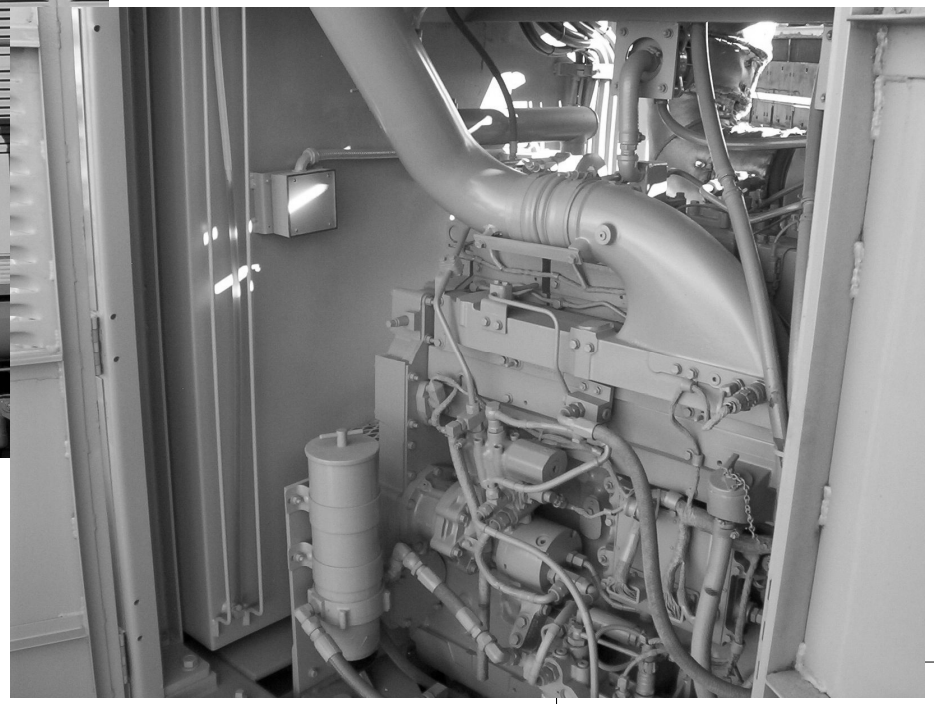
The GenSet in Process



Work in Process

GENSET INSTALLED



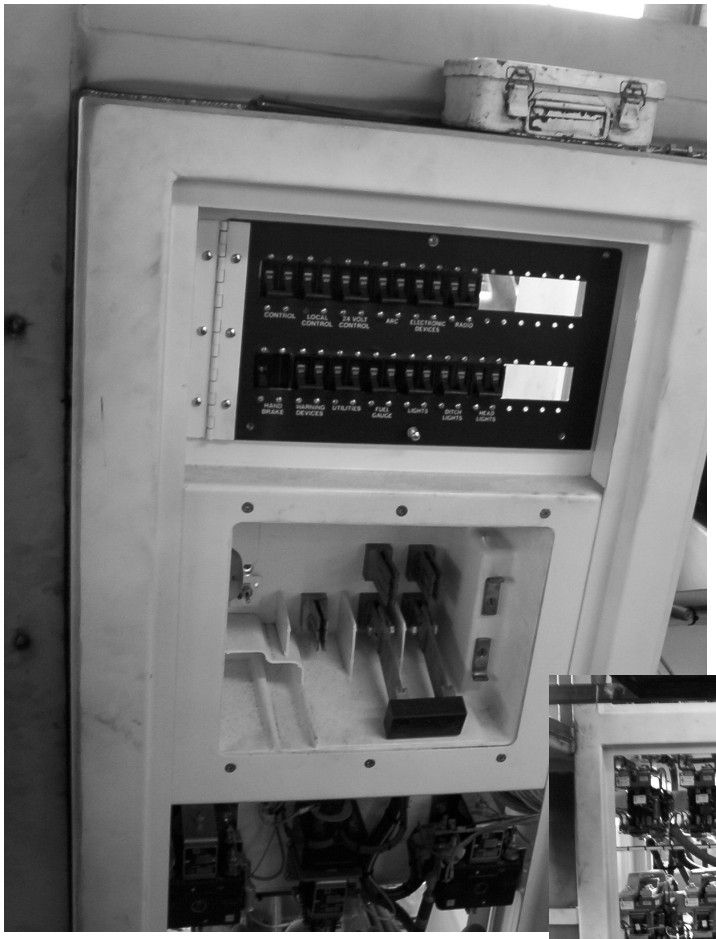


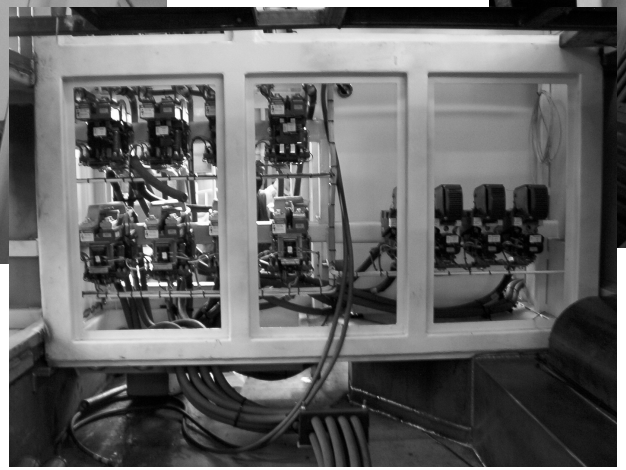
Electronic Propulsion Control

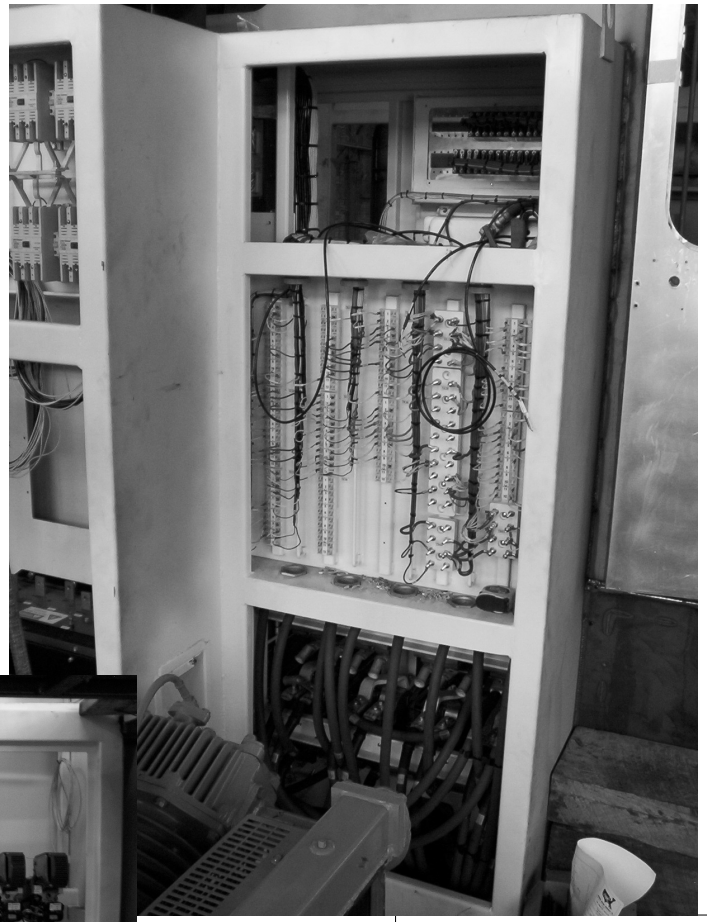
- **NRE Electronics provides the Electronic Control module called the N-FORCE. This system provides all propulsion, accessory equipment, and low voltage control. The N-FORCE is equipped with an Operator Interface Panel display for the monitoring of real time events, storing fault and run time data, and performing self tests.**

- **A high voltage DC Chopper provides propulsion power to each traction motor separately for enhancing adhesion control by as much as 50% + compared to conventional DC locomotives.**

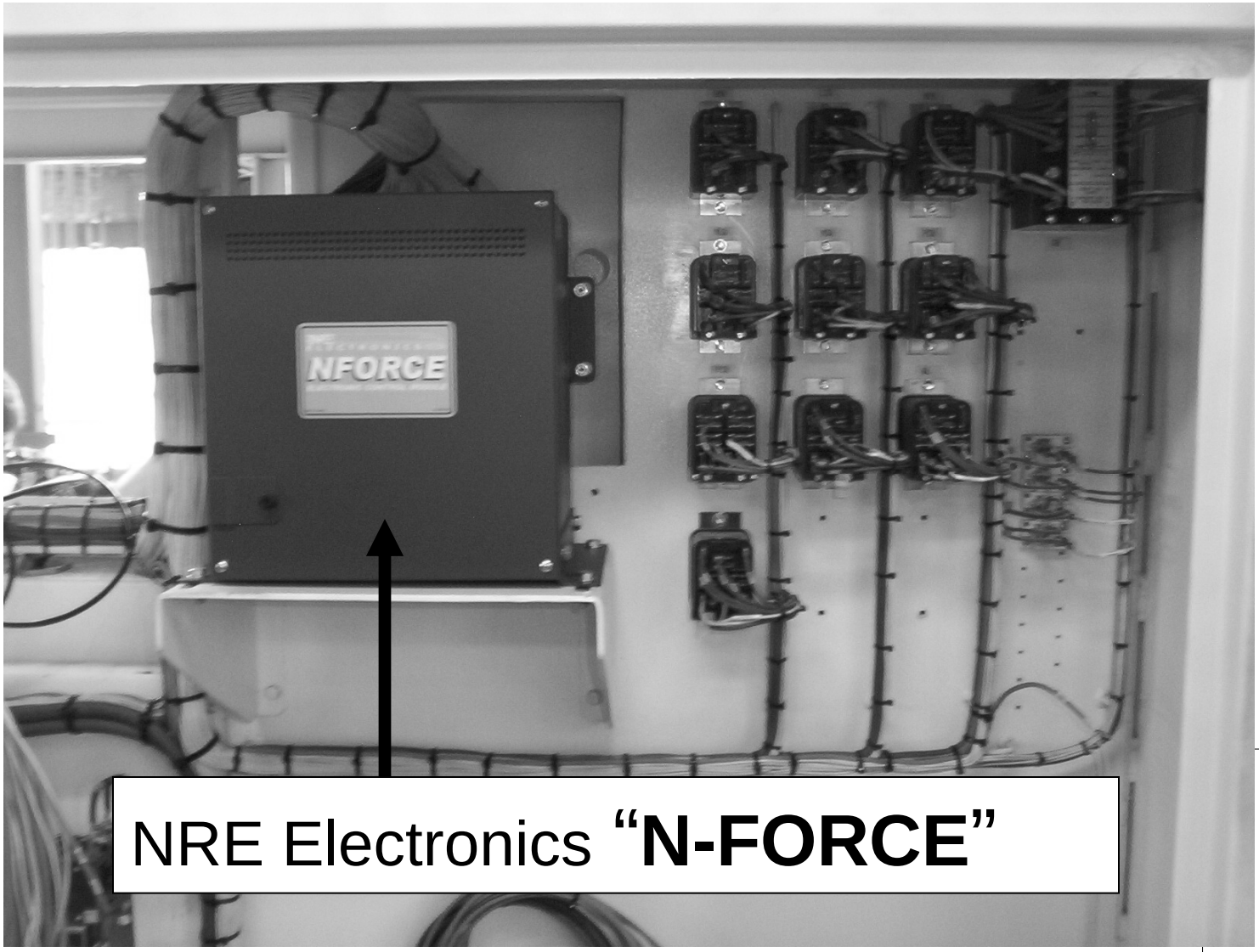
Electric Cabinet in Process





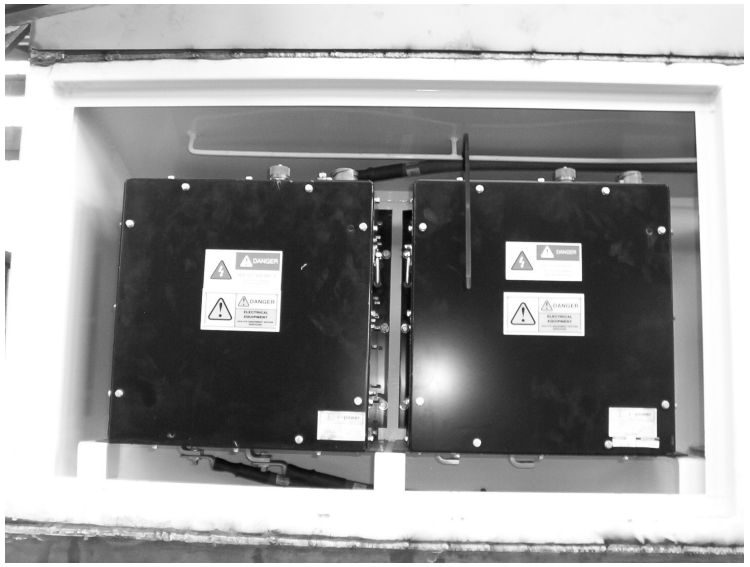


Microprocessor



NRE Electronics “**N-FORCE**”

DC Chopper Compartment



Chopper Cooling Air Exhaust

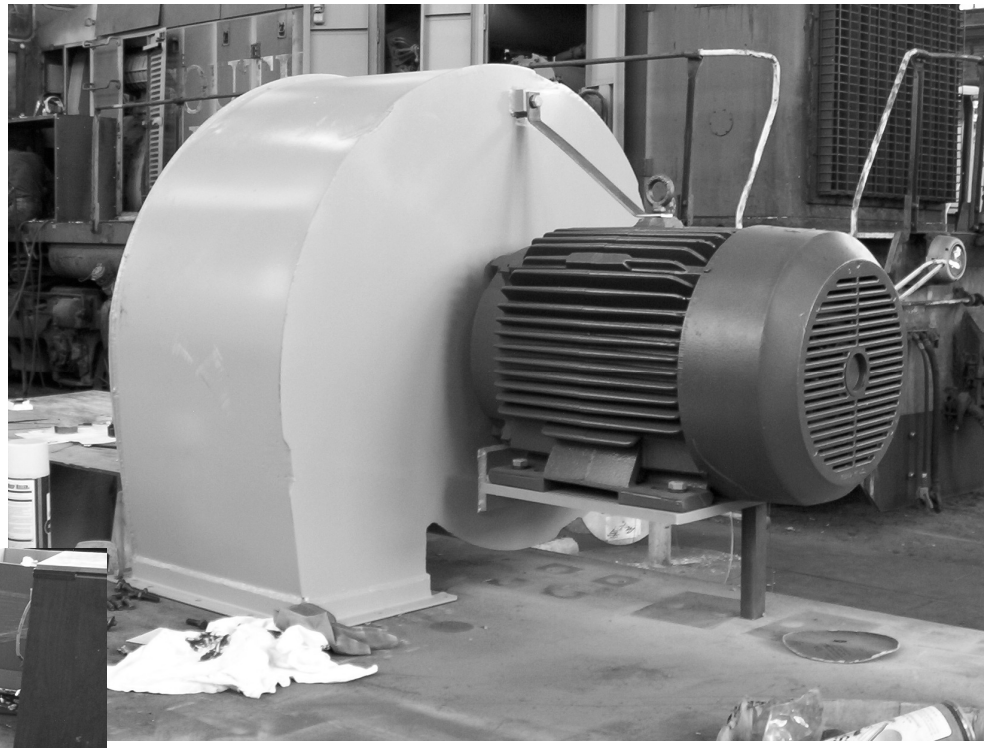
Cab Console in Process

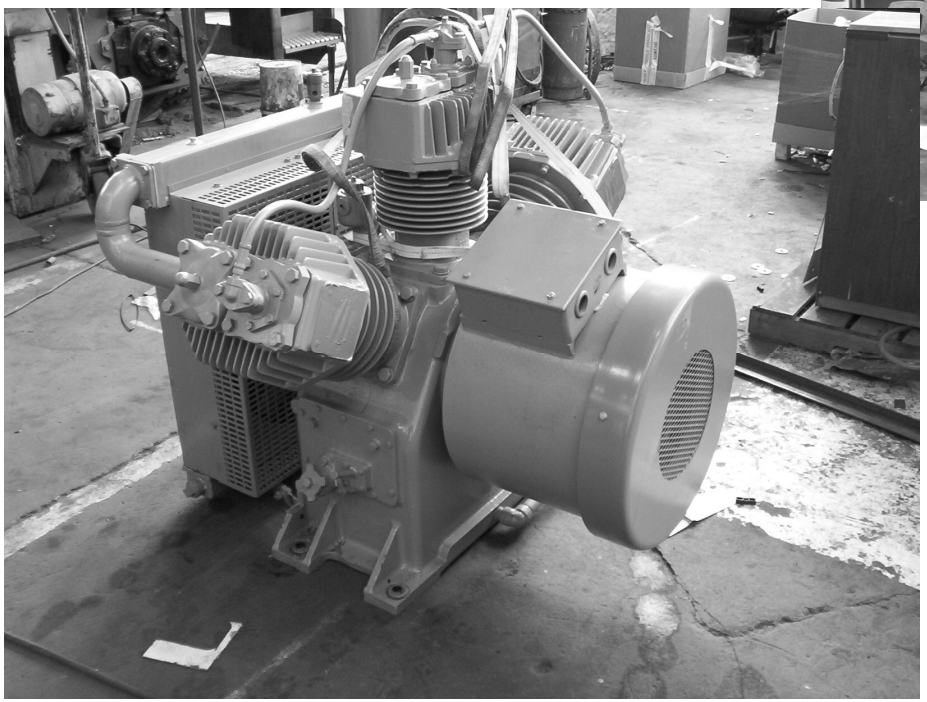
Cab Console Completed

Accessory Equipment

- **Equipped with a variable speed 3 phase 240-480 VAC electric motor driven Atlas-Copco model rotary screw air compressor.**
- **The Equipment blower provides 15,000 cfm cooling air for the traction motors, DC Choppers, DC Rectifier, Low Voltage Power Supply and Electric Cabinet Pressurization.**
- **The Low Voltage Power Supply Converts 240-480 VAC to 64-74 VDC for battery charging and low voltage control.**
- **A DC to AC inverter is provided to convert 64-74 VDC to 115 VAC for RV type heating, ventilation and air conditioning (HVAC) power as well as 24 VDC for Low Voltage GenSet Control.**
- **Equipped with standard 26L air brake.**
- **NYAB electronic air brake is optional.**

Air Compressor and Equipment Blower





RV Type HVAC

ORIGINAL MP15 DC CORE LOCOMOTIVE

ENGINES OF CHANGE